Gunter, Jason

From: Nations, Mark [mnations@doerun.com]
Sent: Tuesday, February 11, 2014 9:16 AM
To: Gunter, Jason
Cc: Yingling, Mark; Wohl, Matthew; 'Kevin Lombardozzi' (kevinl@VALHI.NET); Norman Lucas (cityhall@i1.net); robert.hinkson@dnr.mo.gov; brandon.wiles@dnr.mo.gov; Ty Morris (TMorris@barr.com); Sanders, Amy B.; Cummings, Mark
Subject: National January 2014 Progress Report
Attachments: NATL_01-14[1].doc; 2014-01-23 NAT UAO Pace Lab Report.pdf; 2014-01-28 NAT UAO Pace Lab Report.pdf

Jason,
Attached is the January report. Let me know if you have questions.
Mark

THE DOE RUN COMPANY

Remediation Group

Mark Nations
Mining Properties Manager
mnations@doerun.com

February 10, 2014

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
11201 Renner Blvd.
Lenexa, KS 66219

Re: National Mine Tailings Site Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 51 of the Unilateral Administrative Order (Docket No.CERCLA-07-2006-0231) for the referenced project and on behalf of The Doe Run Company and NL Industries, Inc., the progress report for the period January 1, 2014 through January 31, 2014 is enclosed. If you have any questions or comments, please call me 573-518-0800.

Sincerely,

Mark Nations
Mining Properties Manager

Enclosure
c: Mark Yingling – TDRC (electronic only)
Matt Wohl – TDRC (electronic only)
Kevin Lombardozzi – NL Industries, Inc.
Matt Whitwell – City of Park Hills
Norm Lucas – Park Hills – Leadington Chamber of Commerce
Robert Hinkson – MDNR
Brandon Wiles – MDNR
Ty Morris – Barr Engineering

National Mine Tailings Site
Park Hills, Missouri
Removal Action - Monthly Progress Report
Period: January 1, 2014 – January 31, 2014

1. **Actions Performed and Problems Encountered This Period:**
   a. Work continued on the development of the Removal Action Report.

2. **Analytical Data and Results Received This Period:**
   a. During this period, water samples were collected at the sampling locations identified in Appendix C of the Removal Action Work Plan where water was present. Copies of the analytical results from the last sampling event are included with this progress report.

3. **Developments Anticipated and Work Scheduled for Next Period:**
   a. Continue developing the Removal Action Report.
   b. Complete monthly water sampling activities as described in the Removal Action Work Plan.
   c. Complete air monitoring activities as described in the Removal Action Work Plan.

4. **Changes in Personnel:**
   a. None.

5. **Issues or Problems Arising This Period:**
   a. None.

6. **Resolution of Issues or Problems Arising This Period:**
   a. None.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

January 31, 2014

Amy Sanders
The Doe Run Company
P. O. Box 500
Viburnum, MO 65566

RE: Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

Dear Amy Sanders:
Enclosed are the analytical results for sample(s) received by the laboratory on January 24, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60161839001	**NAT EAST**	Water	01/23/14 11:32	01/24/14 08:45

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SAMPLE ANALYTE COUNT

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60161839001	**NAT EAST**	EPA 200.7	NDJ	6	PASI-K
		EPA 200.7	NDJ	3	PASI-K
		SM 2540C	JMC	1	PASI-K
		SM 2540D	JMC	1	PASI-K
		SM 2540F	JMC1	1	PASI-K
		SM 4500-H+B	JML	1	PASI-K
		EPA 300.0	OL	1	PASI-K

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

Sample: NAT EAST **Lab ID: 60161839001** Collected: 01/23/14 11:32 Received: 01/24/14 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 12:08	7440-43-9	
Calcium	**104000**	ug/L	100	10.4	1	01/28/14 17:00	01/29/14 12:08	7440-70-2	
Lead	**7.3**	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 12:08	7439-92-1	
Magnesium	**57200**	ug/L	50.0	6.5	1	01/28/14 17:00	01/29/14 12:08	7439-95-4	
Total Hardness by 2340B	**496000**	ug/L	500		1	01/28/14 17:00	01/29/14 12:08		
Zinc	**159**	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 12:08	7440-66-6	
200.7 Metals, Dissolved (LF)	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Cadmium, Dissolved	ND	ug/L	5.0	2.5	1	01/28/14 17:00	01/29/14 13:21	7440-43-9	
Lead, Dissolved	**4.1J**	ug/L	5.0	2.4	1	01/28/14 17:00	01/29/14 13:21	7439-92-1	
Zinc, Dissolved	**131**	ug/L	50.0	3.3	1	01/28/14 17:00	01/29/14 13:21	7440-66-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**615**	mg/L	5.0	5.0	1		01/30/14 07:44		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		01/28/14 16:10		
2540F Total Settleable Solids	Analytical Method: SM 2540F								
Total Settleable Solids	ND	mL/L/hr	0.20	0.20	1		01/24/14 10:30		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.2**	Std. Units	0.10	0.10	1		01/27/14 12:49		H6
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**233**	mg/L	20.0	1.1	20		01/29/14 12:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

QC Batch: MPRP/26007
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60161839001

METHOD BLANK: 1322792
Matrix: Water
Associated Lab Samples: 60161839001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	ug/L	ND	5.0	01/29/14 12:01	
Calcium	ug/L	ND	100	01/29/14 12:01	
Lead	ug/L	ND	5.0	01/29/14 12:01	
Magnesium	ug/L	ND	50.0	01/29/14 12:01	
Total Hardness by 2340B	ug/L	ND	500	01/29/14 12:01	
Zinc	ug/L	ND	50.0	01/29/14 12:01	

LABORATORY CONTROL SAMPLE: 1322793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	1000	992	99	85-115	
Calcium	ug/L	10000	9800	98	85-115	
Lead	ug/L	1000	1020	102	85-115	
Magnesium	ug/L	10000	10200	102	85-115	
Total Hardness by 2340B	ug/L		66400			
Zinc	ug/L	1000	996	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322794 1322795

Parameter	Units	60161839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	ND	1000	1000	1010	1010	101	101	70-130	0	10	
Calcium	ug/L	104000	10000	10000	112000	113000	81	84	70-130	0	9	
Lead	ug/L	7.3	1000	1000	991	989	98	98	70-130	0	10	
Magnesium	ug/L	57200	10000	10000	66300	66600	91	94	70-130	1	9	
Total Hardness by 2340B	ug/L	496000			554000	556000				0		
Zinc	ug/L	159	1000	1000	1140	1130	98	97	70-130	1	11	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1322796 1322797

Parameter	Units	60161892001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	ND	1000	1000	1060	1060	106	106	70-130	0	10	
Calcium	ug/L	54.6 mg/L	10000	10000	63500	63600	90	90	70-130	0	9	
Lead	ug/L	ND	1000	1000	950	951	95	95	70-130	0	10	
Magnesium	ug/L	399 mg/L	10000	10000	404000	403000	53	43	70-130	0	9	M1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1322796			1322797							
Parameter	Units	60161892001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Hardness by 2340B	ug/L	1780 mg/L			1820000	1820000				0		
Zinc	ug/L	ND	1000	1000	979	976	98	98	70-130	0	11	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

QC Batch: MPRP/26023
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 60161839001

METHOD BLANK: 1323393
Matrix: Water
Associated Lab Samples: 60161839001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	ND	5.0	01/29/14 13:14	
Lead, Dissolved	ug/L	ND	5.0	01/29/14 13:14	
Zinc, Dissolved	ug/L	ND	50.0	01/29/14 13:14	

LABORATORY CONTROL SAMPLE: 1323394

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	1000	1040	104	85-115	
Lead, Dissolved	ug/L	1000	1050	105	85-115	
Zinc, Dissolved	ug/L	1000	1020	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1323395 1323396

Parameter	Units	60161839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	ND	1000	1000	1040	1050	104	105	70-130	1	10	
Lead, Dissolved	ug/L	4.1J	1000	1000	1030	1030	102	102	70-130	0	10	
Zinc, Dissolved	ug/L	131	1000	1000	1130	1140	100	100	70-130	1	11	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

QC Batch: WET/45867
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60161839001

METHOD BLANK: 1324013
Matrix: Water
Associated Lab Samples: 60161839001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	01/30/14 07:39	

LABORATORY CONTROL SAMPLE: 1324014

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	975	97	80-120	

SAMPLE DUPLICATE: 1324015

Parameter	Units	60161962001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	557	573	3	10	

SAMPLE DUPLICATE: 1324016

Parameter	Units	60161839001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	615	636	3	10	

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

QC Batch: WET/45839
QC Batch Method: SM 2540D
Analysis Method: SM 2540D
Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 60161839001

METHOD BLANK: 1323386
Matrix: Water
Associated Lab Samples: 60161839001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	01/28/14 16:08	

SAMPLE DUPLICATE: 1323387

Parameter	Units	60161715002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	5.0	5.0	0	10	

SAMPLE DUPLICATE: 1323388

Parameter	Units	60161861002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

QC Batch: WET/45811
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60161839001

SAMPLE DUPLICATE: 1322654

Parameter	Units	60161611002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	1	5	H6

REPORT OF LABORATORY ANALYSIS

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(913)599-5665

QUALITY CONTROL DATA

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

QC Batch: WETA/27971
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 60161839001

METHOD BLANK: 1323269
Matrix: Water
Associated Lab Samples: 60161839001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	01/29/14 12:14	

LABORATORY CONTROL SAMPLE: 1323270

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1323271 1323272

Parameter	Units	60161509001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	3570	2500	2500	5990	5980	97	96	80-120	0	15	

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
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QUALIFIERS

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

H6	Analysis initiated outside of the 15 minute EPA recommended holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, Inc.
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(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NATIONAL (MONTHLY)
Pace Project No.: 60161839

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60161839001	**NAT EAST**	EPA 200.7	MPRP/26007	EPA 200.7	ICP/19908
60161839001	**NAT EAST**	EPA 200.7	MPRP/26023	EPA 200.7	ICP/19907
60161839001	**NAT EAST**	SM 2540C	WET/45867		
60161839001	**NAT EAST**	SM 2540D	WET/45839		
60161839001	**NAT EAST**	SM 2540F	WET/45793		
60161839001	**NAT EAST**	SM 4500-H+B	WET/45811		
60161839001	**NAT EAST**	EPA 300.0	WETA/27971		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO#: 60161839

60161839

799707743188

Client Name: Doe Run

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 5268 1279 3954 (1/24/14) **Pace Shipping Label Used?** Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ **Seals intact:** Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☒

Thermometer Used: T-239 / T-194 **Type of Ice:** (Wet) Blue None (circle one) ☐ Samples received on ice, cooling process has begun.

Cooler Temperature: 0.6

Temperature should be above freezing to 6°C

Date and initials of person examining contents: JLC 1/24/14

Chain of Custody present:	☒Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☒Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☒Yes ☐No ☐N/A	4.
Samples arrived within holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	6. Soil
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	7.
Sufficient volume:	☒Yes ☐No ☐N/A	8.
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	9.
Containers intact:	☒Yes ☐No ☐N/A	10. no volume for TOC
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	12.
Sample labels match COC:	☒Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☒No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☒No ☐N/A	
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Per Amy Sanders, TOC will be recollected. JLC 1/24/14

Project Manager Review: Jamie Church 1/24/14 Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	The Doe Run Company	Report To:	Amy Sanders	Attention:	Amy Sanders
Address:	PO Box 500	Copy To:		Company Name:	The Doe Run Company
	Viburnum, MO 65566			Address:	PO Box 500, Viburnum, MO 65566
Email To:	asanders@doerun.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	573-689-4535 Fax: 573-244-8179	Project Name:	National (Monthly)	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	5 - 7 Days	Project Number:		Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER

Site Location STATE: MO

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WP; AR; OT; TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	TSS/TDS	Sulfate	Settleable Solids	TOC	Cd, Pb, Zn (T&D)*	Hardness	pH					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																				Y/N	N	N	N	N	N	N	N							
1	Nat East		W	G			01/23/14	1132		4	2	1	1							X	X	X	X	X	X	X	X					N	60161839
2	Nat NW		W	G						4	2	1	1							X	X	X	X	X	X	X	X					N	
3	Nat SE		W	G						4	2	1	1							X	X	X	X	X	X	X	X					N	
4	Nat SW		W	G						4	2	1	1							X	X	X	X	X	X	X	X					N	
5																																	
6																																	
7																																	
8																																	
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
* 200.7 Total Recoverableand Dissovled Metals (Lab Filter for dissolved)	Larry Hopkins Doe Run	1/23/14		PASI	1/24/14	0845	0.6	Y	Y	Y
**analyzed within 24 hours with flagged data										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Larry Hopkins

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 1/23/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

February 07, 2014

Amy Sanders
The Doe Run Company
P. O. Box 500
Viburnum, MO 65566

RE: Project: National (Monthly)
Pace Project No.: 60162287

Dear Amy Sanders:
Enclosed are the analytical results for sample(s) received by the laboratory on January 31, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jamie Church
jamie.church@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
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Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: National (Monthly)
Pace Project No.: 60162287

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(913)599-5665

SAMPLE SUMMARY

Project: National (Monthly)
Pace Project No.: 60162287

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60162287001	**NAT EAST**	Water	01/28/14 09:00	01/31/14 09:00

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SAMPLE ANALYTE COUNT

Project: National (Monthly)
Pace Project No.: 60162287

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60162287001	**NAT EAST**	SM 5310C	DJR	1	PASI-K

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ANALYTICAL RESULTS

Project: National (Monthly)
Pace Project No.: 60162287

Sample: NAT EAST **Lab ID: 60162287001** Collected: 01/28/14 09:00 Received: 01/31/14 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**1.3**	mg/L	1.0	0.50	1		02/06/14 20:52	7440-44-0	B

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QUALITY CONTROL DATA

Project: National (Monthly)
Pace Project No.: 60162287

QC Batch: WETA/28060 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 60162287001

METHOD BLANK: 1326083 Matrix: Water
Associated Lab Samples: 60162287001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	0.53J	1.0	02/06/14 20:26	

LABORATORY CONTROL SAMPLE: 1326084

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.4	109	80-120	

MATRIX SPIKE SAMPLE: 1326085

Parameter	Units	60162287001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	1.3	5	6.2	97	80-120	

SAMPLE DUPLICATE: 1326086

Parameter	Units	60162171001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	40.2	40.4	0	25	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALIFIERS

Project: National (Monthly)
Pace Project No.: 60162287

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: National (Monthly)
Pace Project No.: 60162287

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60162287001	**NAT EAST**	SM 5310C	WETA/28060		

Pace Analytical www.pacelabs.com

Sample Condition Upon Receipt

WO#: 60162287

60162287

Client Name: JLC

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 797756499679 **Pace Shipping Label Used?** Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ **Seals intact:** Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☐

Thermometer Used: T-193 / T-194 **Type of Ice:** Wet Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 0.6

Temperature should be above freezing to 6°C

Date and initials of person examining contents: 1/31/14

Chain of Custody present:	☑Yes ☐No ☐N/A	1.
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4. 0900
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5. Date
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	6. Date on container is 1/28/14
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.
Sufficient volume:	☑Yes ☐No ☐N/A	8.
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	9.
Containers intact:	☑Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.
Sample labels match COC:	☑Yes ☐No ☐N/A	
Includes date/time/ID/analyses Matrix: WT		13.
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	14.
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☑Yes ☐No	Initial when completed / Lot # of added preservative
Trip Blank present:	☐Yes ☐No ☑N/A	
Pace Trip Blank lot # (if purchased):		15.
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Per Amy Sanders, collection date and time on COC is incorrect. Correct date is 1/28/14 at 9:00am. JLC 2/4/14

Project Manager Review: MW for JLS Date: 2/1/14

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	The Doe Run Company	Report To:	Amy Sanders	Attention:	Amy Sanders
Address:	PO Box 500	Copy To:		Company Name:	The Doe Run Company
	Viburnum, MO 65566			Address:	PO Box 500, Viburnum, MO 65566
Email To:	asanders@doerun.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	573-689-4535 Fax: 573-244-8179	Project Name:	National (Monthly)	Pace Project Manager:	Jamie Church
Requested Due Date/TAT:	5 - 7 Days	Project Number:		Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER _____

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
	WP
	AR
	OT
	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	TSS/TDS	Sulfate	Settleable Solids	TOC	Cd, Pb, Zn (T&D)*	Hardness	pH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																	Y/N				N					60162287
1	Nat East	W	G			01/30/14			1		1										X				N	16135 001
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* 200.7 Total Recoverableand Dissovled Metals (Lab Filter for dissolved)	Larry Hopkins	1/30/14		PAS	1/31/14	0900	0.6	Y	X	Y
**analyzed within 24 hours with flagged data										

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Larry Hopkins					
SIGNATURE of SAMPLER:	Larry Hopkins	DATE Signed (MM/DD/YY): 1/30/14				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007